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ABSTRACT

The Bilingual Pupil Services (BPS) had two complementary objectives: (1) to provide supplementary services to students of limited English proficiency (LEP) by giving them instruction in English as a Second Language (ESL) and bilingual reading and mathematics; and (2) to provide in-service training to paraprofessionals who were enrolled in programs that led to teacher certification. In its 16th year of service, the program served 2,548 elementary school students at 35 schools in New York City and trained 98 paraprofessionals. The BPS, during the year evaluated, trained 20 more paraprofessionals than in the previous year, and provided services for 673 additional students. The program met its objectives in bilingual mathematics, English reading, Spanish reading, staff development, and parental involvement. Recommendations for program improvement include: (1) modification of the evaluation design in order to utilize the results of already mandated tests for measuring achievement; (2) exploration of the availability of appropriate testing instruments in Haitian Creole and Chinese; and (3) funds permitting expansion of the population being trained to include new teachers in schools not served by BPS. (GLR)

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OREA Report

EVALUATION SECTION REPORT

BILINGUAL PUPIL SERVICES

B.P.S.
Grant Number 01604

1988-89

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EVALUATION SECTION
John E. Schoener, Chief Administrator
March 1990

EVALUATION SECTION REPORT

BILINGUAL PUPIL SERVICES

B.P.S.
Grant Number 01604

1988-89

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BILINGUAL PUPIL SERVICES
B.P.S.
1988-89

SUMMARY

- The Bilingual Pupil Services program was fully implemented. During the 1988-89 school year, the project provided supplementary instruction in English as a Second Language, English reading, bilingual reading, and mathematics. It also offered in-service training to paraprofessionals and parental involvement activities.

- The project met its objectives in bilingual mathematics, English reading, and Spanish reading, staff development, and parental involvement. Lack of valid tests made it impossible for OREA to evaluate the Haitian Creole and Chinese reading objectives.

Bilingual Pupil Services (B.P.S.), a Chapter I program of the Educational Consolidation and Improvement Act (E.C.I.A.), was in its sixteenth year of operation. The program served 2,548 elementary school students whose native languages were Spanish, Chinese, and Haitian Creole, at 35 schools in the Bronx, Brooklyn, Manhattan, and Queens. B.P.S. also provided in-service training to 98 paraprofessionals. The program had a dual purpose: to provide instruction in English as a Second Language (E.S.L.), bilingual reading, and mathematics, as well as to provide in-service training to paraprofessionals who were enrolled in programs that led to teacher certification.

B.P.S. followed Chapter I guidelines in selecting participating schools. Program students had to be of limited English proficiency (LEP students), indicated by scores below the twenty-first percentile on the Language Assessment Battery (LAB).

An Office of Research, Evaluation, and Assessment (OREA) field consultant interviewed project and school personnel and collected and analyzed student data forms and project records. The program used the Comprehensive Test of Basic Skills (C.T.B.S.) to assess students' performance in English reading, Spanish reading, and mathematics. OREA could not assess Chinese and Haitian reading because of the lack of a valid instrument. B.P.S. met all the objectives that OREA had the data to assess.

As compared with last year, B.P.S. trained 20 additional paraprofessionals and provided services for 673 additional students. It developed new workshops and introduced innovative activities such as a newsletter and the offering of college credits for workshop attendance.

B.P.S. was an exceptional program. Its two-tiered objective--to serve LEP students directly and to train bilingual

paraprofessionals to become teachers of LEP students--was perfectly complementary. Its staff enjoyed the appreciation and support of school administrators and teachers. Project weaknesses were in the area of testing--staff felt that students were given too many tests--and in the project's inability to find valid instruments for evaluating the Chinese or Haitian reading objectives.

The conclusions, based on the findings of this evaluation, lead to the following recommendations:

- Modify the evaluation design so as to utilize the results of already mandated tests for measuring achievement. Using results of the LAB and the Metropolitan Achievement Test in mathematics at the appropriate levels would halt over-testing.

- Explore the availability of appropriate testing instruments in Haitian Creole and Chinese.

- Funds permitting, expand the population being trained to include new teachers in schools not served by B.P.S. so that LEP students at those schools receive adequate instruction.

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I. INTRODUCTION

This report documents the Office of Research, Evaluation, and Assessment's (OREA's) evaluation of the 1988-89 Educational Consolidation and Improvement Act (E.C.I.A.) Chapter I program, Bilingual Pupil Services (B.P.S.). The Division of Multilingual and Multicultural Education (DOMME) of the New York City Board of Education administered the program, which completed its sixteenth year. B.P.S. had two complementary objectives: to provide supplementary services to students of limited English proficiency (LEP students) by giving them instruction in English as a Second Language (E.S.L.) and bilingual reading and mathematics, and to provide in-service training to paraprofessionals who were enrolled in programs that led to teacher certification. During 1988-89, B.P.S. trained 98 paraprofessionals who served 2,548 speakers of Spanish, Chinese, and Haitian Creole at 35 schools in the Bronx, Brooklyn, Manhattan, and Queens.

HISTORY OF THE PROGRAM

The history of B.P.S., as well as a description of its implementation and outcomes, is included in previous years' final evaluation reports.

SETTING

B.P.S. served 35 schools located in 19 Community School Districts (C.S.D.s) in four boroughs.

The project selected target schools with the highest concentration of Chinese, Hispanic, and Haitian LEP students in need of assistance. Special consideration was given to schools

with a significant number of newly arrived LEP students and schools in more economically deprived areas. All of the project schools were Chapter I-eligible, with a collective average of 50-75 percent of their students living below the national poverty level.

Eligible schools also had to meet two conditions: they could not duplicate services, and they had to give the paraprofessionals released time to attend college courses and B.P.S. in-service training. Most schools welcomed the opportunity to work with B.P.S. and made no objection to these requirements; B.P.S. got more petitions for service than it could accept.

PARTICIPATING STUDENTS

Students selected for participation in the program were Chapter I-eligible LEP students whose native languages were Spanish, Chinese, and Haitian Creole, in grades one to six, and with demonstrated educational deficiencies.

Of the 2,548 students served by B.P.S., 1,478 (58 percent) were in the program the full year. Students' ages ranged from five to fourteen years. (See Table 1.) The project provided data on native language for 2,515 students, 1,688 of whom (67 percent) spoke Spanish, 473 (19 percent) spoke Chinese, and 354 (14 percent) spoke Haitian Creole.

Most of the participating students had only recently arrived in this country. The number of years of education in the United States was two years or less for 64 percent of the students. (See Table 2.) The Chinese-speaking group had immigrated most

TABLE 1

Number of Project Students by Age and Grade*

Age	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6	TOTAL
5	2						2
6	281	2		1			284
7	277	198	2	1			478
8	39	204	194	1			438
9	3	56	228	140	1		428
10	2	3	93	220	85	3	406
11			15	93	108	55	271
12			6	12	50	80	148
13			1	2	11	43	57
14						9	9
TOTAL	604	463	539	470	255	190	2521

Over-age Students

Number	44	59	115	107	61	52	438
Percent	7.3	12.7	21.3	22.8	23.9	27.4	17.4

Note. Shaded boxes indicate expected age range for grade.

* As of June 1989

- Only seventeen percent of program students were over-age for their grade.
- The highest percentage of over-age students was in the sixth grade.

TABLE 2

Years of Education in the United States

Years	Chinese		Haitian Creole		Spanish		Total	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
0	3	.6	10	3.0	13	.8	26	1.1
1	224	47.9	133	39.4	430	26.8	787	32.7
2	161	34.4	107	31.7	463	28.9	731	30.3
3	42	9.0	55	16.3	338	21.1	435	18.0
4	25	5.4	18	5.3	187	11.6	230	9.5
5	10	2.1	9	2.7	96	6.0	115	4.8
6	3	0.6	3	0.8	44	2.7	50	2.1
7	-	-	3	0.8	19	1.2	22	.9
8	-	-	-	-	14	0.9	14	.6
TOTAL	468	100.0	338	100.0	1,604	100.0	2,410	100.0

- Almost one-half of the Chinese-speaking students had only one year of education in the United States.
- Most Haitian Creole and Spanish-speaking students had between one and three years of education in the United States.

recently--83 percent had been here fewer than two years.

STAFF

B.P.S. staff for 1988-89 consisted of an acting project director, five Field Instructional Specialists (FISs), an accountant, a bilingual stenographer/secretary, a bilingual office aide, and 98 paraprofessionals.

The acting project director was responsible for the overall administration, coordination, and supervision of the program. She had been with the program since 1984, when she joined it as a FIS after six years of teaching experience. She spoke fluent English and Spanish and had a working knowledge of French.

The five FISs (three Spanish/English, one Chinese/English, and one Haitian Creole/English) were licensed teachers who had master's degrees in bilingual education and had taken additional coursework in administration and education. Their regular duties included assisting in the screening and selection of paraprofessionals, and observing and evaluating them in the classroom, providing instruction to B.P.S. children in demonstration lessons, planning and coordinating workshops, developing and distributing materials, and serving as liaison with district and school personnel. B.P.S. also assigned special projects to the FISs according to their previous experience and/or areas of interest. The Haitian FIS took responsibility for acting as parent liaison and organized parent workshops at schools. Another FIS acted as college liaison, recruiting and obtaining help from colleges on major workshops. She also negotiated with Empire State College to get college credits for

staff attending workshops and providing services in schools.

Paraprofessionals were bilingual in Spanish, Chinese, or Haitian Creole and English. They had to have completed at least 60 college credits and be registered in a four-year college course leading to teacher certification.

B.P.S. paired each paraprofessional with a cooperating teacher, who functioned as a mentor. Paraprofessionals usually worked with small groups of students in a designated area of the classroom, instructing them in reading, writing, and mathematics. They also prepared lesson plans, maintained pupil profiles and logs, and planned lessons and activities with the teacher on a weekly basis. They administered pre- and posttests to students to assess achievement of objectives.

DELIVERY OF SERVICES

The project provided compensatory services in bilingual reading and bilingual mathematics. Instruction was generally provided in the classroom in small groups. Students received 15-20 instructional sessions per week in bilingual reading and mathematics, each session lasting 30-45 minutes.

The staff development component was designed to make participating teachers and paraprofessionals more effective in the classroom. Workshops provided information on the project's goals, approaches, and materials. During the year, B.P.S. provided participants with on-site training, after-school workshops, and weekly staff meetings.

REPORT FORMAT

This report is organized as follows: Chapter II outlines the evaluation methodology; Chapter III describes the project's implementation and assesses the attainment of its implementation objectives; Chapter IV evaluates outcome objectives; and Chapter V offers conclusions and recommendations based upon the results of this evaluation.

II. EVALUATION METHODOLOGY

EVALUATION QUESTIONS

The evaluation assessed two major areas: program implementation and outcomes. Evaluation questions included the following:

Process/Implementation

- Did B.P.S. select students for program participation according to specific criteria?
- Did the project implement its training activities as planned?
- Did the project implement activities for parental involvement as proposed?
- Did B.P.S. implement activities for the development of bilingual reading skills as proposed?
- Did B.P.S. implement activities for the development of bilingual mathematics skills as proposed?

Outcome

- What was the average Normal Curve Equivalent (N.C.E.) gain on the Comprehensive Test of Basic Skills (C.T.B.S.)?
- Did students show achievement in mathematics by improved posttest scores on the C.T.B.S.?
- Did Spanish-speaking students improve their scores on the C.T.B.S. Español?

EVALUATION PROCEDURES

Sample

An OREA field consultant interviewed the project director, attended two workshops, and visited four program sites. She observed six classes and interviewed the principals of P.S. 2,

P.S. 125, and P.S. 155, and the coordinator at the P.S. 130 Annex. OREA-provided a student data form for each participating student; B.P.S. returned 2,548 completed forms. B.P.S. provided evaluation forms for each paraprofessional.

Instruments

OREA developed interview and observation guides. Project personnel used OREA-developed data retrieval forms to report student demographic, attendance, and achievement data.

Data Collection

The OREA field consultant interviewed school and program staff and observed classes and workshops during April and May. OREA distributed student data forms to the program director during the spring and collected them at the end of June.

Data Analysis

OREA evaluated improvement in English, Spanish, and mathematics proficiency by comparing performance on the C.T.B.S. at the beginning of the fall semester (October) and at the end of the spring semester (May).

B.P.S. students were tested at grade level in English reading, Spanish reading, and mathematics; raw scores were converted to Normal Curve Equivalent (N.C.E.)* scores and OREA

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* N.C.E. scores have the advantage of forming an equal interval scale so that scores and gains can be averaged. For the norming population, N.C.E.s have a mean of 50, a standard deviation of approximately 21, and a range from one to 99. Scores can be compared to the norming population.

performed correlated *t*-tests to assess the statistical significance of pretest/posttest differences.

Limitations

B.P.S. paraprofessionals were assigned to classes with children who most needed their services. This prevented the selection of a control group. However, national norms were used for comparison purposes.

III. EVALUATION FINDINGS: IMPLEMENTATION

B.?.S. provided 2,548 LEP students with direct bilingual instructional services in reading and mathematics. It also provided 98 paraprofessionals with in-service training. Project personnel made attempts to increase parental involvement and to facilitate coordination among district superintendents, principals, teachers, and paraprofessionals as part of the State Congruence Project.

STUDENT PLACEMENT AND PROGRAMMING

Paraprofessionals worked with a particular class based on its general skill level, i.e., with children most in need of extra help. The project did not give any special consideration to individual needs for placement purposes. Selection criteria for these classes included scores below the twenty-first percentile on the Language Assessment Battery (LAB)*, below grade-level proficiency on citywide reading/mathematics tests, informal diagnoses, records of academic performance, and observations by professional staff. During the school year, the teacher programmed students for different activities in the classroom as necessary.

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*The Language Assessment Battery (LAB) was developed by the Board of Education of the City of New York to measure the English-language proficiency of non-native speakers of English in order to determine whether their level of English proficiency is sufficient to enable them to participate effectively in classes taught in English. Students scoring below the twenty-first percentile on the LAB are entitled to bilingual and E.S.L. services.

INSTRUCTIONAL ACTIVITIES

The project provided a comprehensive program of bilingual reading and mathematics. In reading, students had opportunities for listening, speaking, reading, and writing; in mathematics, they focused on the development of skills in computation, mathematical concepts, and problem-solving. An OREA field consultant visited several sites and observed activities in different classes.

Most B.P.S. students took one period per day of E.S.L., bilingual reading, and bilingual mathematics. Those students who were more English proficient--approximately 10 percent of the population--took a fourth period of English reading as well.

The single negative aspect of the instructional program mentioned by several teachers was that students took an excessive number of standardized tests. Some tests were designed to assess achievement in the program and others were mandated by the city.

Bilingual Reading

Chinese Component. In the P.S. 130 Annex, a school in which all four classes were bilingual Chinese/English, the field consultant observed a reading lesson. The teacher had grouped the students according to their reading level. The paraprofessional worked with nine first-graders who had been in the country less than six months. The lesson included reading each of the words on the blackboard, explaining their meaning, and using them in a sentence. Students actively volunteered

responses. English was the main language; the paraprofessional used Chinese only to explain a few words to the students.

In P.S. 2, one of the classes the consultant observed was a third-fourth grade (bridge) class of 24 Chinese-speaking students. While the teacher conducted another activity, the paraprofessional worked with a small group of eight students who were reading below grade level. He asked questions about the relationship of words to drawings on the blackboard. English was the only language spoken, the atmosphere was informal and permissive, and the students participated eagerly.

The consultant also observed a fifth grade class of 22 Chinese-speaking students. Six students were doing independent reading, eight were working with the teacher, and eight were checking homework with the paraprofessional. The lesson was on words with "bl," "fl," and "cl"; the paraprofessional read each word, and students read aloud the sentences they had constructed around the word. English was the only language used.

Spanish Component. At P.S. 155, the OREA field consultant observed a class of first graders who worked on cutting out, assembling, and gluing a "dinosaur hat" in preparation for a trip to the museum. The teacher read a story about dinosaurs, and the paraprofessional helped children who seemed to have difficulty following the instructions. The paraprofessional said that she worked on the content areas in Spanish every morning with the children. The children were working diligently, and many of them

volunteered to tell the OREA consultant what they did in their science lessons.

The field consultant also observed a library class at P.S. 155. The paraprofessional was working with second graders in need of remedial reading, while the librarian read a story in Spanish to the rest of the class.

Haitian Creole Component. At PS 125, B.P.S. provided paraprofessionals for a third-fourth grade (bridge) class and a fifth grade class. The OREA consultant observed the bridge class, composed of a heterogeneous group of 25 Haitian Creole-speaking students aged eight to eleven, whose length of stay in the United States ranged from a few months to four years. The paraprofessional worked with nine students who had recently arrived in this country. During the first part of the lesson, the children read sentences from their homework and the paraprofessional corrected their pronunciation and asked about the meaning of particular words. The lesson then focused on the use of comparative forms. The paraprofessional offered an adjective and asked the students to construct a sentence with the corresponding comparative. Students addressed one another in Haitian Creole most of the time, while the paraprofessional used the language only about one-third of the time.

NON-INSTRUCTIONAL ACTIVITIES

The project proposed non-instructional objectives in staff development and parental involvement.

Staff Development

The project had two objectives in this area. One covered specific topics that B.P.S. offered to the paraprofessionals, the second covered staff development for the FISs.

Paraprofessionals. The program objective for staff development for paraprofessionals was:

- Ninety-eight paraprofessionals will be provided with specialized training in: bilingual methods and techniques used in teaching reading and mathematics to pupils in grades 1-6; the development, selection and evaluation of bilingual materials in the reading and mathematics program, grades 1-6; the methods and techniques used in teaching English as a Second Language (before the introduction to reading) to pupils in grades 1-6; lesson planning and classroom management techniques; and computer literacy.

Training activities for the paraprofessionals in the B.P.S. program consisted of monthly workshops for all program participants, weekly in-service sessions for new entrants into the program, and seminars for graduating paraprofessionals.

The project offered nine monthly workshops, each lasting a full day. Most of the workshops were designed to expose paraprofessionals to other cultures in order to make them more aware of and more sensitive to the needs of people from various cultural backgrounds. Thus, topics included Puerto Rican, Dominican Republic, Chinese, American Indian, and Haitian Creole heritages; and International Christmas. There was also a science workshop, in which a guest speaker demonstrated a "hands-on" approach to the teaching of science. Other workshops dealt with the role of the bilingual teacher and with testing and data collection.

The OREA consultant attended the workshops on American Indian and Haitian Creole heritages. Members of the Native American Education Program conducted the former, providing information on the histories, cultures, traditions, and current status of Native Americans. Participants saw a film that had been designed and produced with the help of students from the Native American program, a program also administered by DOMME. The film presented some common stereotypes about Indians and suggested ways of preventing the perpetuation of these misconceptions in school materials. A period of discussion followed. During the rest of the seminar, each participant made a "story-teller," a clay doll representing a woman surrounded by many children. While participants made their dolls, a member of the staff told a story of the Seneca people.

Participants received evaluation questionnaires at the end of each monthly workshop. The questionnaires provided a scale from "poor" to "excellent" for grading the relevancy of program materials, pertinency of content, the most and least significant aspects, and overall effectiveness. A section solicited suggestions for future project activities.

OREA staff members reviewed questionnaires from a sample of these monthly workshops. Responses were overwhelmingly positive. The vast majority found nearly all of the activities to be very useful both in the information shared and in the potential for practical application in a classroom.

Paraprofessionals entering the program attended 13 weekly in-service training sessions provided by the acting director of B.P.S. and the five FISs. These sessions were intended to familiarize paraprofessionals with E.S.L., bilingual reading and mathematics, native language instruction, the use of computers in the classroom, science and social studies through reading, and materials development.

B.P.S. provided three graduate in-service workshops for those paraprofessionals who were completing their college degrees and graduating from the program. The seminars, which took place in May, centered around strategies to assist new teachers in dealing with matters that would be of immediate concern to them. The agendas were as follows:

Session I:
a) United Federation of Teachers contract/Teacher rights.
b) How to become a teacher.
c) What it means to be a bilingual teacher.

Session II:
a) Resume writing/mock interviews.
b) Human relations.

Session III:
a) Beginning strategies for the new teacher.
b) Curriculum guides.
c) Classroom management.

Once again, participants found the seminars well structured and adequate to their needs. B.P.S. clearly met its staff development objective for paraprofessionals.

Teachers of all the observed classes spoke positively about the program, and claimed the training of paraprofessionals made a definite impact on their approach to bilingual education. Several of the staff members interviewed hoped the project could

reach more students by training teachers in schools not served by the project at the time.

Field Instructional Specialists. The program objective for the professional development of FISs was:

- Six pedagogical staff members will participate in training sessions provided by the Instructional and Support Services Division of the DOMME's Center for Staff Development. Topics will include: goals and objectives of DOMME and B.P.S.; innovative trends, techniques, and methodologies for E.S.L., bilingual reading and mathematics instruction; teaching grouping for instruction; bilingual curriculum and materials evaluation; current research in bilingual education related to evaluation and testing; methods and techniques of supervision and training; increasing parental involvement in bilingual programs; and educational law and bilingual education.

B.P.S. provided the training sessions as proposed. DOMME's Acting Director conducted an orientation session on DOMME's goals and objectives for 1988-89. The project directors of B.P.S. and other projects made a presentation on their programs, including goals and objectives for 1988-89. The staff attended nine additional three hour sessions. B.P.S. met its staff development objective for FISs.

PARENTAL INVOLVEMENT

The program objectives for parental involvement were:

- Parent conferences with school staff, program paraprofessionals, and field instructional specialists will insure communication between the remedial and developmental staff and parents.

- Members of the Parent's Advisory Council (PAC) and other parents of children in the program will be provided with orientation and training in: a) Chapter I guidelines; b) objectives of the program; c)coordination of programs; and d) roles and

responsibilities of program participants, staff, and the PAC Council.

The agendas for the five parent workshops included an overview of B.P.S., a discussion of the objectives of bilingual education, information on school regulation and testing, and hands-on games. All five FISs conducted the workshops. They distributed materials on test-taking skills, bilingual education, and E.S.L. programs. Parents and PAC members attended the workshops. B.P.S. accomplished its parental involvement objectives.

IV. EVALUATION FINDINGS: OUTCOMES

BILINGUAL READING

The evaluation objective for bilingual reading was:

- The pupils who attend on a regular basis and receive in-class, small group reading instruction in Spanish/-English, Chinese/English, or French/Haitian Creole/ English will achieve a mean posttest score that will surpass their pretest at the .05 level of statistical significance, as measured by the Comprehensive Test of Basic Skills (C.T.B.S.), the Community School District 2 test in Chinese, and the Office of Bilingual Education's Native Language Arts tests in French/Haitian-Creole.

English

The C.T.B.S.*, English version, measured English reading achievement. Complete data were available for 1,828 students. (See Table 3.) The range of gains went from 4.1 (Chinese-speakers) to 8.2 (Haitian Creole-speakers); the average gain was 7.0 N.C.E.s, which was significant ($p < .05$). The three language groups as well as the overall program made statistically significant gains. B.P.S. met its English reading objective.

Spanish

The C.T.B.S., Spanish version, measured Spanish reading achievement among Hispanic students. B.P.S. provided data for 1,463 students. The average pretest N.C.E. score was 42.4 (s.d.=21.6), and the average posttest score was 48.6

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*Comprehensive Test of Basic Skills. Monterey, CA: CTB/McGraw-Hill, 1982.

TABLE 3

Pretest/Posttest N.C.E. Differences on the
Comprehensive Test of Basic Skills, English Reading

Language	N	Pretest Mean	Pretest S.D.	Posttest Mean	Posttest S.D.	Difference Mean	Difference S.D.	t Value
Chinese	159	24.2	18.6	28.3	15.6	4.1	14.0	3.75*
Haitian	258	26.7	20.7	34.9	19.2	8.2	16.1	8.25*
Spanish	1,391	31.0	20.5	38.2	17.1	7.2	18.5	14.54*
TOTAL	1,828	29.9	20.5	36.9	17.5	7.0	17.9	16.93*

* P <.05

- Project students demonstrated significant improvement on the posttest.

(s.d.=18.3), very close to the norm. This was an average gain of 6.2 (s.d.=19.0), which is significant ($p < .5$). The program met its objective for Spanish reading.

Chinese

In previous years, the project used a C.S.D. 2-developed test for assessing the development of Chinese reading skills. There was no evidence of reliability or validity, however, which led to the decision to discontinue its use. Because of the lack of an appropriate instrument, this objective could not be evaluated for Chinese students. Project staff, however, monitored student performance subjectively and found noticeable improvement.

French/Haitian Creole

In the past, B.P.S. had used an Office of Bilingual Education-developed test, patterned after the C.T.B.S., to measure improvement in Haitian Creole reading skills. The newly revised version of this test was found to be neither reliable nor valid. B.P.S. decided, therefore, not to use it.

OREA could not assess this objective for Haitian Creole students because no appropriate instrument existed. Again, project staff noted gains in the students' use of their native language.

BILINGUAL MATHEMATICS

The evaluation objective for bilingual mathematics was that:

- The pupils who attend on a regular basis and receive in-class small group instruction in mathematics in Spanish/English, Chinese/English or French/Haitian Creole/English will achieve a mean posttest score that will surpass their pretest score at the .05 level of statistical significance as measured by the Comprehensive Test of Basic Skills (C.T.B.S.)--Mathematics Computation, Concepts and Application.

Complete data were available for 1,843 students. The average posttest score was 49.2 N.C.E.s, meaning that students were able to perform at grade level by the end of the project year. The average increase between the pretest and the posttest was 14.3 N.C.E.s. These results were also statistically significant ($p < .05$). (See Table 4.) Chinese-speaking students had the least increase (8.6 N.C.E.s), but they achieved the best performance, 5.1 N.C.E.s above grade level. Spanish-speaking students made the largest gains (15.1 N.C.E.s). Mean gains were also statistically significant for each language group. B.P.S. met the bilingual mathematics objective.

TABLE 4

Pretest/Posttest N.C.E. Differences on
the Comprehensive Test of Basic Skills, Mathematics

Language	N	Pretest		Posttest		Difference		t
		Mean	S.D.	Mean	S.D.	Mean	S.D.	Value
Chinese	153	46.5	20.4	55.1	17.0	8.6	16.1	6.62*
Haitian	220	28.3	21.0	41.8	19.9	13.5	18.3	11.00*
Spanish	1,451	34.5	20.0	49.6	19.7	15.1	20.5	28.03*
TOTAL	1,843	34.9	20.6	49.2	19.7	14.3	20.0	30.71*

* $P < .05$

- Project students showed significant improvements on the posttest.
- Spanish-speaking students made the greatest gains.

V. CONCLUSIONS AND RECOMMENDATIONS

The Bilingual Pupil Services (B.P.S.) program achieved a high level of success in accomplishing its objectives for the 1988-89 school year. The project met its staff development and parent involvement objectives; it also met the Spanish reading and bilingual mathematics objectives. While B.P.S. implemented Chinese and Haitian Creole reading activities, it was impossible to assess objectives for them because of the lack of valid instruments.

In its sixteenth year of operation, B.P.S. remained a well-structured program. Its staff not only maintained high standards, it also improved both the quality and quantity of services. Compared with the 1987-1988 school year, the project trained 20 additional paraprofessionals (25 percent increase), who provided services for 673 new students (36 percent increase). This resulted in part from the expansion of the program into five additional schools in two new C.S.D.s. B.P.S. began the publication of a newsletter and also initiated negotiations with Empire State College to obtain college credits for workshop attendance and for services rendered in schools.

Principals and cooperating teachers interviewed by the OREA consultant agreed on the overall merit of the program, both as a training ground for paraprofessionals and as a compensatory program for pupils. They felt strongly that the program should serve all students in need. This could only be achieved with unlimited resources and funds, but one way to at least partially

satisfy the need would be for B.P.S. to extend training for teachers to more schools.

Two criticisms concerned testing: the project lacked appropriate testing instruments to evaluate the reading achievement of Haitian Creole- and Chinese-speaking students, and students were required to take an excessive number of standardized tests.

The conclusions, based upon the findings of this evaluation, lead to the following recommendations:

- Modify the evaluation design so as to utilize the results of already mandated tests for measuring achievement. Using results of the LAB and the Metropolitan Achievement Test in mathematics at the appropriate levels would halt over-testing.
- Explore the availability of appropriate testing instruments in Haitian Creole and Chinese.
- Funds permitting, expand the population being trained, to include new teachers in schools not served by B.P.S. so that LEP students at those schools receive adequate instruction.